# NOTE XXXV.

## ON THE GENUS GALIDIA AND ITS SPECIES.

BY

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In the year 1839 Is. Geoff. St. Hilaire [1]) described and figured three species of his new genus *Galidia*, viz: *elegans*, *concolor* and *olivacea*, all natives of Madagascar. It seems that *Galidia olivacea* has not been captured by the travellers who visited Madagascar after Bernier and Goudot: the only specimen hitherto known was the type of which Is. G. St. Hilaire relates "la queue, dans notre individu, est *incomplète;* mais, à en juger par la portion très étendue qui est conservée, elle paraît plus longue que chez la Galidie concolore", and therefore every one meant that the tail of the species in question would be as long as it is in *Galidia concolor* [2]). The two other species are of frequent occurrence, especially *Galidia elegans:* some writers considered them as belonging to the same species, and the *concolor* as the young of the *elegans*; other authors agreed with Is. G. St. Hilaire in keeping the two

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1) Magasin de Zoologie, 1839, deuxième série, p. 18 et sqq.. pls. 14, 15, 16 et 17. The descriptions are very exact and the figures extraordinarily beautiful and of a striking resemblance.

2) Grandidier (Revue et Magasin de Zoologie, 1867) says: "Je pense que la G. concolor est un jeune individu de la G. olivaçea," without giving reason for this statement.

species distinct. Is. G. St. Hilaire however already described the young of the *elegans* in the following terms "le jeune âge diffère de l'adulte par la couleur du dessus de son cou et de ses épaules, région qui est d'un roussâtre tiqueté de fauve, et par la nuance moins foncée et moins vive du rouge marron qui couvre le reste du corps. Les anneaux noirs de la queue sont aussi moins marqués." Grandidier [1]) moreover remarks "le jeune et l'adulte ont la même coloration," and Bartlett [2]) states: "the colours of the young are exactly the same as in the adult."

Is. G. St. Hilaire had before him of the *G. elegans* several individuals and two skulls, of *G. concolor* a single skin without skull; and of *G. olivacea* a single mutilated skin with its skull. He accurately pointed out the differences between the skulls of *elegans* and *olivacea*, and figured the skull of the former. As nobody after him has spoken of the skull of *G. concolor*, and supposed that *olivacea* has a tail as long as in *concolor*, *olivacea* might just be the young of *concolor*, or the contrary might be the case. So, there are three questions to solve, viz:

1°. If there are differences between the skull of *concolor* and the skulls of the other species.

2°. How long the tail of *olivacea* is.

3°. How many species of *Galidia* we must admit.

Up to last year the only species of the genus *Galidia* represented in our collection was *G. elegans;* we possessed three specimens and three skulls, two adult ones labelled "Bernier 1834" and therefore originating from the same collection to which belonged the types of Is. G. St. Hilaire's *G. elegans*; the third specimen, a very young one, was purchased in 1875 of Mr. Frank in London and very likely belonged to the collection of Mammals and Birds

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1) Revue et Magasin de Zoologie, 1867.

2) P. Z. S. L. 1875, p. 64. He had before him an about half-grown young one.

made by Waters in Madagascar and of which Bartlett gave a list in the Proceedings for the year 1875.

Now last year our traveller, J. Audebert, sent a number of eight specimens and the same number of skulls of *Galidia*, collected by him in N. E. Madagascar — Mananare, Mahambo and Maisine. — Of these specimens three adults and a young one belong to *G. elegans*, two other ones agree in all parts with the description and figures of *G. concolor*, given by Is. G. St. Hilaire, and the other two belong clearly to *G. olivacea* of the same author. This collection enables us to solve the above proposed questions.

In comparing the skulls of *olivacea* and *elegans* with that of *concolor* we find the following differences. The skulls being of the same length it must be noticed that in *elegans*, all the teeth are generally stronger and more developed with exception of the hindmost upper and lower molar: the hindmost upper molar is very small in *elegans*, but attains in *concolor* nearly the size and shape of the second upper molar; the hindmost lower molar in *elegans* is merely a very small tooth with a minute excavation and a few elevated tubercles; in the *concolor*, on the other hand, the molar in question is provided with two deep excavations and well developed tubercles and attains towards its base the size of the first lower molar. *Galidia concolor* and *olivacea* agree as to the shape and size of these hindmost molars: Is. G. St. Hilaire remarked "à les juger par leurs tuberculeuses, on penserait que les *Galidia olivacea* et *Galidia elegans* sont de genres très différents." — I have before me six skulls of fullgrown or nearly fullgrown individuals of *G. elegans*, and *no one* of these shows a trace of the small first upper premolar, which I find in the two skulls of *concolor* and the two of *olivacea*. Is. G. St. Hilaire had also observed that small tooth, but he stated "sur trois crânes que j'ai sous les yeux, deux présentent cette petite dent: l'un appartient à une *Galidia elegans* adulte, l'autre à l'adulte d'une autre espèce qui va être décrite sous le nom de *Galidia olivacea*; le troisième, qui ne la présente pas, est celui d'une autre *Galidia elegans*, adulte comme la précédente et plus âgée même, à en juger par l'état de l'ossification du crâne," and he therefore concluded "l'existence ou l'absence de cette molaire accessoire n'est donc pas même un caractère spécifique." — How to explain this discordance?

The auditory bulbus in *G. concolor* is backwards and downwards sack-shaped dilated as in various species of *Herpestes*, in *G. elegans* on the other hand it resembles more that part as it is in *Mustela*. The form of the auditory bulbus of *G. olivacea* is just intermediate between the two other species. The foremost part of the skull is more developed in *G. concolor* and *olivacea* than in *elegans*, whilst in the latter the hind part of the skull is more developed. In two skulls of the same size I find the following very striking differences in the measures.

| | *elegans.* | *concolor.* |
|---|---|---|
| | m. m. | m. m. |
| Length of the skull. . . . . . . . . | 70 | 70 |
| Distance between the eye-hole and intermaxillary . . . . . . . . . . . . | 19 | 21.5 |
| Distance between the eye-hole and occipital crest. . . . . . . . . . . . . . | 54 | 50 |
| Distance between the auditory bullae. . | 10 | 8 |
| Width between jugalia. . . . . . . . | 40 | 38 |
| Smallest width on the upper surface of the skull . . . . . . . . . . . . | 14 | 15.5 |

The skulls of our *G. olivacea* belong to immature individuals, but proportionally they agree much more with the skulls of *concolor* than with those of *elegans*.

The shape of the skull and dentition of *G. concolor* and *olivacea* are nearly the same and greatly differ from *G. elegans*.

It must here be observed that *G. concolor* and *olivacea* also agree with respect to the length of the claws of the hands, which are much larger and less arched than these parts in *G. elegans*.

There are however very striking differences between the *concolor* and *olivacea*; the coloration is different, and the tail of *G. olivacea* is remarkably short. It is indeed very comprehensible that Is. G. St. Hilaire, having but a single skin, which was mereover mutilated concluded, on seeing the short tail, that his individual had the tail smashed. As I have stated above, we possess two specimens of this species with tails as short as the specimen of Is. G. St. Hilaire, and both tails are complete.

Consequently we are qualified to admit with Is. G. St. Hilaire three distinct species of *Galidia*, of which now short diagnostics follow.

### *Galidia elegans*, Is. G. St. Hilaire.

This species is at a glance to be distinguished by its reddish fur, black ringed tail, white bordered ears and short claws of the hands and feet.

Muzzle shorter than in the other two species; ears larger, triangular. General tinge of the fur of a shining reddish, very beautiful color; upperparts of head, neck and back between the shoulders passing to brownish-red; ears, except the broad white margin, chin, throat, chest and inside of forelegs of a more grayish hue; belly, abdomen, in and outsides of hind legs and outside of forelegs dark red, passing to intense black on the hands and feet. Whiskers very short, black.

| | head and body. | tail with tuft. |
|---|---|---|
| Our oldest specimen measures | 39.5 c. m. | 35 c. m. |
| » youngest » » | 22.5 c. m. | 13.5 c. m. |

This very young individual very clearly shows the black rings on the tail.

### *Galidia concolor*, Is G. St. Hilaire.

Tail almost as long as in the foregoing species, but colored like the back. Fur brownish red. Claws of the hands very long, those of feet as in *G. elegans*.

Muzzle more pointed than in *elegans*, ears shorter and more rounded. General tinge of the upperparts a shining, very fine, brownish red, passing towards chest, belly, abdomen and inside of legs to a more reddish color, the hands and feet being black. The peculiar tinge of the upperparts, tail and outsides of legs, is caused by the different colors with which the various hairs are embellished, viz: brown colored woolly hairs, reddish hairs repeatedly ringed with black and hairs which are entirely black. Whiskers short, black.

Length of a fullgrown individual: head and body 35,3 c. m., tail with tuft 28,5 c. m.

I believe that the "Vondsira," Flacourt ¹) and "le Vansire," Buffon et Daub. ²) belonged to this species and not to *G. elegans* as Is. G. St. Hilaire and other authors state, for, in my opinion, these authors would not have overlooked the very striking characteristic, viz: the black ringed tail, if they had had before them specimens of the latter species.

### *Galidia olivacea*, Is. G. St. Hilaire.

Tail much shorter than in the foregoing species, colored like the back. Fur dark olive-colored. Claws of hands and feet as in the *G. concolor*, but the former are more arched than in that species.

Muzzle and ears as in *G. concolor*. Upperparts of a magnific dark olive color, passing towards the lower parts and insides of legs to a more brownish-red tinge. Hands and feet grizzled black. The fur of upperparts and tail consists of olive-brown woolly hairs, other hairs of which some are entirely black, and some black with one or two reddish olive-brown rings; the hairs of the tail have more of such rings. Whiskers short, black.

Measurements of a nearly fullgrown individual: head and body 28.5 c. m., tail with tuft 19 c. m.

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1) Histoire de la grande isle Madagascar, 1661, p. 154.

2) Histoire naturelle, 1770, nouv. éd., T. XIII, p. 89, pl. XXII.